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BOTANY.—*New composites from Salvador.* S. F. BLAKE, Bureau of Plant Industry.

The extensive botanical collections made in Salvador in 1921–22 by Mr. Paul C. Standley of the U. S. National Museum contain three new species of Asteraceae, which are described below. The new genus *Rensonia* is the first known Central American representative of a small group of the subtribe Melampodinae which has hitherto consisted of the medium-sized genus *Silphium* of the United States, the monotypic *Schizoptera* of Ecuador, and the small genus *Moonia* of Australia, India, and Ceylon. The new species of *Zexmenia* is also interesting from a geographical point of view, as its nearest relative is a Brazilian species.

***Vernonia standleyi* Blake, sp. nov.**

Shrubby, 1 to 1.6 meters high, branched above, the branches sometimes supra-axillary; stem stoutish, sometimes zigzag, grayish-barked, striatulate, sessile-glandular, puberulous above, glabrate below; leaves alternate; petioles naked, puberulous, 2 to 5 mm. long; leaf blades elliptic-oblong or elliptic, 6 to 9 cm. long, 1.3 to 3 cm. wide, acuminate, acutely or acuminately cuneate at base, subentire or serrulate with about 15 pairs of small acute teeth, firm-papery, above dotted with sessile yellowish glands, finely puberulous, glabrate except along the veins, beneath paler green, gland-dotted and not densely short-pilose with flexuous hairs, more or less glabrescent except along the nerves, featherveined, the lateral veins about 6 pairs, prominulous beneath, the veinlets few and prominulous beneath; heads discoid, 5-flowered (rarely 4-flowered), 8 mm. high in fruit, numerous, sessile or subsessile in dense rounded clusters 1 to 3 cm. thick at tips of branches and stem and on short axillary branchlets; involucre 5 or 6-seriate, graduate, 4.5 mm. high, the outermost phyllaries ovate, the middle ones ovate-oblong, the innermost linear and deciduous, all indurate and whitish, greenish along costa above, obtuse to acutish, the innermost glandular on back and sparsely arachnoid-ciliate, thin-margined, the others glandular and more or less villous dorsally and densely arachnoid-ciliate; corollas whitish (?), hispidulous especially on tube, 5.5 mm. long (tube 2.5 mm., throat 0.5 mm., teeth 2.5 mm.); achenes

somewhat obcompressed-turbinate, 2.5 mm. long, 7-ribbed, whitish, densely ascending-pilose, bearing a short glabrous collar at apex; pappus 2-seriate, white, copious, the outer aristae numerous, 0.8 mm. long, the inner 3.5 mm. long.

Type in the U. S. National Herbarium, no. 1,135,594, collected on brushy hillside near Santa Ana, Department of Santa Ana, Salvador, altitude 655 to 800 meters, January 8, 1922, by Paul C. Standley (no. 19703).

ADDITIONAL SPECIMENS EXAMINED: SALVADOR: Pine forest, vicinity of Santa Ana, altitude 655 to 900 meters, January 28 to 30, 1922, *Standley* 20413.

A member of the section *Eremosis*, nearest *Vernonia triflosculosa* H.B.K., but distinguished by its usually 5-flowered heads, its densely arachnoid-ciliate phyllaries (the outermost ovate, not suborbicular or suborbicular-ovate as in *V. triflosculosa*), and the much more conspicuous glabrous collar at apex of achene. The species is abundant on the slopes along the railroad in the Department of Santa Ana, forming large masses, which are conspicuous because of the white pappus of the closely crowded heads.

Rensonia Blake, gen. nov.

Shrub; leaves opposite, ovate, slender-petioled, large, serrate, scabrous; heads small, heterogamous, radiate, in terminal cymose panicles, the rays pistillate, fertile, the disk sterile; involucre turbinate-campanulate, 2-seriate, equal or subequal, the phyllaries 8 or 9, oblong-obovate, erect, indurate below, thick-herbaceous above; receptacle small, flat; outer pales flattish, the inner narrow, complicate; pistillate flowers about 8, about 1-seriate, their corollas ligulate, yellow, apparently small; disk flowers hermaphrodite, sterile, about 20, their corollas tubular, with slender tube, much longer cylindric-funnelform throat, and 5-toothed limb; anthers with minutely sagittate bases and ovate terminal appendages; style (hermaphrodite flowers) undivided, above thickened and hispidulous; ray achenes obovate, obcompressed, epappose, not at all coherent with the subtending phyllaries or the pales of the disk, 2-winged, the wings submembranous, narrow, nerved, entire or lacerate above, prolonged above the achene into two triangular lacerate teeth; disk achenes inane, elongate-clavate, trigonous, wingless, their pappus a short, thick, entire, hispidulous crown, with or without a single short, slender awn.

This genus is named for Dr. Carlos Renson, who has been connected with the Salvador Department of Agriculture for more than thirty years, and whose botanical collections, a series of which is in the U. S. National Herbarium, are the most extensive made in Salvador prior to Mr. Standley's trip. It is a member of the Heliantheae-Melanpodinae, to be inserted between *Silphium* L. and *Schizoptera* Turcz. The former genus, no species of which is known south of the United States, consists of tall herbs with large, broadly campanulate or subglobose heads and 2 or 3-seriate rays. The monotypic genus *Schizoptera* Turcz.,¹ known only from Ecuador, is an herb with a campanulate involucre of membranous-herbaceous outer and

¹See Blake, Hook. Icon. Pl. 31: pl. 3058. 1916, and Contr. Gray Herb. n. ser. 52: 34. 1917.

membranous-scarious inner phyllaries, biseriate rays, and disk achenes epappose or with 2 awns but no corona.

Rensonia salvadorica Blake, sp. nov.

Shrub 2 to 5 meters high, oppositely branched; stem slender, scabrid-strigillose, gray-barked, subterete, striatulate, the younger branches angulate; petioles naked, strigillose, 2.5 to 8.5 cm. long; leaf blades ovate, 9 to 26 cm. long, 3.5 to 10 cm. wide, acuminate and usually somewhat falcate, acutely cuneate (sometimes abruptly so) at base, serrate except toward base and at apex with about 45 pairs of depressed acutely callous-tipped teeth, thin, above deep dull green, rather densely and very harshly hispidulous with mostly deciduous hairs with lepidote-tuberculate persistent bases, beneath slightly lighter green, evenly short-strigose with slightly harsh hairs and along the veins sparsely hispid or hispidulous, triplinerved above the base and loosely prominulous-reticulate beneath; heads (flowers fallen) 6 to 7 mm. high, about 5 mm. thick, about 20 in a terminal, ternately divided, convex, cymose panicle 4 to 7 cm. wide, its branches densely strigillose, the bracts very small, the slender pedicels 1 to 2 cm. long; involucre 5 to 7 mm. high, strigillose, the firm thickish phyllaries oblong-obovate, 1.5 to 2 mm. wide, acute, callous-tipped, 3 or 5-nerved; ray flowers scarcely seen; disk corollas (over-mature) 5 mm. long (tube 1 mm., throat 3.2 mm., teeth ovate, 0.8 mm.); pales narrow, firmly scarious, acuminate, strigillose, about 5 mm. long; ray achenes broadly obovate, 5.2 to 5.8 mm. long and 2.5 to 2.8 mm. wide (including wings), the body obovate, blackish, 4 mm. long, 2 mm. wide, nerveless, hispidulous toward apex outside, nearly glabrous inside, the wings erect-nerved, continued into triangular teeth, the teeth and sometimes the upper part of the wings lacerate and minutely ciliolate; disk achenes 3.2 to 3.5 mm. long, hispidulous toward apex, the corona 0.3 mm. high, the awn 0.7 to 1.2 mm. high.

Type in the U. S. National Herbarium, no. 1,135,663, collected in the wooded ravine of the Río Ataco, among mountains back of Ahuachapán, Department of Ahuachapán, Salvador, altitude 800 to 1000 meters, January 10, 1922, by Paul C. Standley (no. 19783).

ADDITIONAL SPECIMENS EXAMINED: SALVADOR: Along stream, vicinity of Ahuachapán, January 14, 1922, *Standley* 19964. In forest, Sierra de Apaneca, region of Finca Colima, Department of Ahuachapán, January 17 to 19, 1922, *Standley* 20090.

This shrub bears the vernacular names "canilla," "tatascamillo," and "vara de zope." Unfortunately all three collections are too mature to show the character of the flowers well. A single imperfect ray adhering to one of the heads was yellow, nearly linear, and appeared to be scarcely longer than the style branches. All the flowers are probably yellow. The species is very similar in general appearance to *Perymenium strigillosum* (Robins. & Greenm.) Greenm.

Zexmenia iners Blake, sp. nov.

Erect or decumbent annual, 25 to 50 cm. high, freely branched; stem slender, densely spreading-hirsutulous with somewhat uncinuate hairs and sparsely hispid with straight wide-spreading hairs, glabrate below; leaves opposite essentially throughout; petioles 2 to 10 mm. long, hirsutulous and hispid-ciliate; leaf blades of the stem leaves ovate or oblong-ovate, 2.5 to 7 cm. long, 1.2

to 3.3 cm. wide, acute or acuminate, acutely cuneate at base, depressed-serrate (teeth 4 to 8 pairs), thin, evenly but not densely uncinat-hirsutulous on both sides, evenly tuberculate-hispid on surface above, hispid chiefly on the veins beneath, triplinerved well above the base, green on both sides; branch leaves smaller; heads solitary in the forks of the stem and at tips of branches, in flower slender, about 6 mm. wide, in fruit hemispheric, about 1 cm. wide; peduncles slender, pubescent like the stem, 1 to 5 cm. long; disk in anthesis 7 mm. high, 3 mm. thick; involucre 2-seriate, obgraduate or subequal, 6 to 8 mm. high, the phyllaries few (about 6), the outer lanceolate or narrowly oblong-lanceolate, 1.5 to 2 mm. wide, obtuse or acutish, herbaceous for the upper half of their length, pale and usually 1-ribbed below, erect, pubescent like the stem and hispid-ciliate, the inner similar but usually shorter and broader, with shorter usually acute herbaceous tips; rays 3 to 5, fertile, orange yellow, the lamina suborbicular, 3 to 3.5 mm. long, 2.8 to 3 mm. wide, bilobate with sometimes bidentate lobes, densely hirsutulous on back on the two chief nerves; disk flowers about 5 to 7, orange yellow, puberulous and ciliolate on the teeth and with a puberulous ring at base of throat. 3.8 to 4.5 mm. long (tube tubular-funnelform, 1.5 to 2 mm., throat funnelform, 1.5 to 1.8 mm., teeth ovate, 0.7 mm.); pales scarious, obtuse, wing-keeled to below the apex, 7 mm. long; ray achenes (with wings included) broadly oval-obovate, 5.5 mm. long, 3.5 to 4 mm. wide, the wings about 1 mm. wide, short-ciliate and erose, prolonged above the achene as rounded ears, not adnate to the pappus cup, often purplish-spotted, the body of achene obovoid, obcompressed, 4 mm. long, 1.5 mm. wide, blackish, tuberculate-hispidulous especially on midline, with a conspicuous callous appendage on each face at base; pappus a short-stipitate, lacerate, squanellaceous corona about 1.5 mm. high (including the neck), and 1 to 3 awns 2 mm. high or less, or the latter sometimes obsolete; disk achenes similar but compressed, the pappus awns 2, unequal, 1 to 1.5 mm. long.

Type in the U. S. National Herbarium, no. 1,139,183, collected in sand along a stream, near Armenia, Department of Sonsonate, Salvador, April 18, 1922, by Paul C. Standley (no. 23498).

OTHER SPECIMENS EXAMINED: SALVADOR: In hedgerow, vicinity of San Salvador, altitude 650 to 850 meters, December 20, 1921, to January 4, 1922, *Standley* 19414. Wet soil along stream, vicinity of San Salvador, March 30 to April 24, 1922, *Standley* 23300. Wet thicket, vicinity of Santa Emilia, Department of Sonsonate, altitude 135 meters, March 22 to 25, 1922, *Standley* 22259.

Among North American species *Zexmenia iners* is nearest *Z. hispida* (H.B.K.) A. Gray and *Z. longipes* Benth., from both of which it differs in its annual root, smaller heads on much shorter peduncles, and tiny, roundish rays. *Z. rudis* Baker of Brazil, the only annual species of the genus hitherto known, is more closely related to *Z. iners*, but has considerably larger leaves and rays.

ENTOMOLOGY.—*New genera and species of sucking lice.* H. E.

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In this paper are described four new genera and three new species of Anoplura, or sucking lice. The material upon which these genera

and species are based is a part of the collection of sucking lice of the United States National Museum, and in this museum the types are catalogued and deposited.

Proenderleinellus, gen. nov.

Second abdominal segment not provided with a pair of ventral tubercle-bearing plates. Number of pairs of abdominal pleural plates seven. Antennae without any tooth-like processes; and head without paired plates situated on ventral surface between the antennae. First and second pairs of legs subequal and smaller than the last pair. Tibiae of first and second legs broadened distally and tarsi of the same legs broadened proximally, thus forming with the claws, clasping structures; first and second tarsal claws simple. Parameres of male genitalia long, arm-like.

Type of genus: Proenderleinellus africanus, new species.

This genus is related to *Hoplopleura* Enderlein on the one hand and to *Microphthirus* Ferris and *Enderleinellus* Fahrenholz on the other. Only the type species is included.

Proenderleinellus africanus, sp. nov.

Forehead fully twice as broad as long; postantennal region of head about as broad as long and with two pairs of dorsal setae, an anterior, minute pair just behind the antennae and a large posterior pair at the posterior angles. Antennae about as long as head; second segment the longest. Thorax with two pairs of dorsal setae, a small, very short, spine-like pair just inside and slightly in front of the thoracic spiracles and a very large, long, curved pair just inside and slightly posterior of the spiracles. Anterior process, or manubrium, of sternum with parallel sides; sternum also with a posterior process extending between the posterior coxae. Abdomen with a lateral area both above and below without setae and between this lateral area and the pleurae on each typical abdominal segment are situated two setae. Typical pleural plates with two small, pectinate, posterior lateral lobes, and between them are situated the two, large, subequal, straight pleural setae. In typical pleural plates the stigmata is situated near the posterior margin. Genital armature of male with broad, parallel-sided, distally emarginate basal plate; long curved parameres; and stout, heavily chitinated pseudopenis. Posterior legs considerably enlarged, but not enormous, their expanded claws simple. Length of male, 1.42 mm.; width of male, 0.57 mm.

Type host and type locality: From *Thryonomys gregor pusillus* (U.S.N.M. 184180), taken at Majiya-Chumvi, British East Africa.

Type.—Cat. No. 23760, U.S.N.M.

Description based on a single male, but it is a perfect specimen.

Pterophthirus, gen. nov.

Antennae without lateral processes and essentially the same in the two sexes. Typically each abdominal segment of female provided dorsally with three transverse rows of setae. Second sternal plate of abdomen not divided medially into two large rounded plates. Second pair of pleural plates not lobed, but enormous and wing-like and each bearing the small, spine-like pleural setae near its dorsal margin.

Type of genus: Hoplopleura alata Ferris.

This genus is established for the reception of the peculiar Octodont infesting species, *Hoplopleura alata* Ferris and *H. audax* Ferris. The great modification of the second pair of pleural plates, not so much in size but in type, is the outstanding feature in this genus. This modification has resulted in the peculiar shifting of the position of the pleural setae so that they have become dorso-marginal.

***Eulinognathus americanus*, sp. nov.**

Forehead very short and cone-shaped; postantennal region of head as broad as long. Antennae equal to the head in length; first segment broader than long, second segment of about equal breadth and length. Thorax about as broad as long; sternum without anterior process between first coxae but with a posterior process which extends between the third coxae for a part of its length. Abdomen much longer than broad. Typical pleural plates with spiracular opening slightly in front of the middle, with two cusp-like posterior lobes and short, stumpy, truncate pleural setae, scarcely half as long as the pleural plates themselves. Abdominal setae curved near their bases, flattened and parallel-sided beyond and truncate distally, each being about as long as the abdominal segment on which it is situated. Gonopods of female short and stumpy and with a few spinous setae. Second legs intermediate between first and third. Claw of third leg neither toothed or appendiculate. Length of female 0.95 mm.; width of female 0.39 mm.

Type host and type locality: From *Ctenomys brasiliensis* (Cat. No. 3252, 1939 U.S.N.M.) taken at Salade River, Paraguay.

Type.—Cat. No. 23761, U.S.N.M.

The genus to which this species belongs has been represented in the past by only two species, one of which came from a host of the rodent family Pedetidae and the other from the rodent family Dipodidae. The host of the new species here described belongs to the rodent family Octodontidae. Only a single female specimen taken.

***Phthirpediculus*, gen. nov.**

Antennae long and distinctly five-segmented. Thorax and abdomen distinctly separated; segments two, three and four of abdomen distinct and bearing its pair of spiracles in the normal lateral position; abdomen with well developed pleural plates on segments three to eight and without lateral lobes. Typical abdominal segments provided with a single transverse row of setae both above and below. Genital armature of male with a basal plate composed of two distally united, parallel rods; with large, more or less blade-like parameres; and with conspicuous, heavily chitinized pseudopenis. First pair of legs very small, the other two pairs much enlarged; all legs attached to thorax in a ventro-lateral position.

Type of genus: *Phthirpediculus propithecii*, new species.

This genus, represented only by the new species here described, is intermediate between *Pediculus* Linnaeus and *Phthirus* Leach, having the long abdomen with pleural plates as in *Pediculus*, but the small anterior legs of *Phthirus*.

Phthirpediculus propithecii, sp. nov.

Forehead provided with posteriorly directed, spine-like tubercles both above and below; postantennal region of head with two small spine-like tubercles behind the insertion of each antenna. Eyes with poorly developed corneas, situated at the anterior angles of temples. Antennae longer than the head; first segment with four small ventral tubercles; second segment with one dorsal and two ventral tubercles; third segment with extended anterior margin, which causes antenna to become geniculate, the bend being between third and fourth segments; last segment with sensory pit on posterior margin. Thorax broadest at its posterior margin, where it joins the abdomen. Each posterior angle of thorax with a conspicuous spine-like tubercle. Typical pleural plates of abdomen bilobed and with the contained stigmata near the front margin. Genital armature of male with a basal plate composed of two parallel chitinous rods which are united distally; with almost straight parameres, inwardly thickened, outwardly coming to a knife-edge and posteriorly each ending in a small, blunt hook; pseudopenis very large, consisting of a basal rod and a distally articulated chitinous hook; true penis anterior to pseudopenis, being a bent, chitinous tube. Anterior legs scarcely half as large as either of the others and each tibia with three ventral spines; tibial thumbs of second and third pairs of legs, each with a distal, stout spine. Length of female, 1.35 mm.; width of female, 0.52 mm. Length of male, 1.23 mm.; width of male 0.45 mm.

Type host and type locality: From a lemur, *Propithecus edwardsi*, taken at Ambodiasy, eastern Madagascar.

Type slide: Cat. No. 23762, U.S.N.M.

Specimens as follows: Two females and one male (on type slide) from female skin (Cat. No. 63352, U.S.N.M.) of *Propithecus edwardsi* taken at Ambodiasy, eastern Madagascar and two males from male skin (Cat. No. 63354, U.S.N.M.) of same host, taken at same place.

Proechinophthirus, gen. nov.

Forehead very short, almost obliterated; temporal regions with prominent, long, curved setae. Thorax longer than broad; sternum wanting. Abdomen long and clothed with both long setae and short spines. Genital armature of male with broad, unforked basal plate and slightly curved, freely projecting, unhooked parameres. First pair of legs greatly reduced, without tibial thumb, and in no way adapted for clasping.

Type of genus: *Echinophthirus fluctus* Ferris.

The type and only included species in this genus was described from specimens taken from an undetermined museum skin without data. In the United States National Museum there are several specimens taken from the fur seal (*Callorhinus alascanus*) at St. Paul Island, Alaska, by F. W. True and D. W. Prentiss, June 3, 1895.

In the nonsimilarity of the legs and the presence of long setae over practically all the body we have two good characters for differentiating this genus from *Echinophthirus* Giebel.